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The Japanese Trade Challenge and the U.S. Response

Addressing the Structural Causes of the Bilateral Trade Imbalance

Dominick Salvatore

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Dominick Salvatore

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Dominick Salvatore is Professor of Economics at Fordham University in New York and is co-chair of the New York Academy of Sciences. He has published over 20 books, including *The New Protectionist Threat to World Welfare* (1987). His research has been published in more than 50 articles in leading scholarly journals and presented at numerous national and international conferences. Professor Salvatore is Editor of the Handbook Series in Economics for the Greenwood Press and an Associate Editor of the *Open Economies Review* and the *American Economist*.

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Preface

In 1989, the U.S. Advisory Committee for Trade Policy and Negotations (ACTPN) issued an *Analysis of the U.S.-Japan Trade Problem*. In addition to a broad range of bilateral macroeconomic adjustments and structural reforms, the ACTPN report endorsed a "results-oriented" approach to resolving U.S.-Japanese trade problems on a sectoral basis. This approach would require the U.S. government to establish clear priorities for trade targets, to negotiate over outcomes as well as procedures, to monitor Japanese compliance, and to take decisive counteracting measures if the targets are not met.

This part of the ACTPN report's recommendations was immediately attacked by some economists and government officials for violating the principles of "free trade." The report had found that in fact Japanese industrial policies and trade strategies had long been violating those principles. But even critics who agreed with the findings of fact asserted that as a matter of principle the U.S. government should not do anything to counteract those policies and strategies—except to request politely that the Japanese abandon them. Siding with the critics, the Bush Administration ignored the report's recommendations, and proceded to accept vague Japanese promises of reform in exchange for dropping U.S. action against Japan under Super 301 of the 1988 Trade Act.

The Economic Policy Institute believes that the issues raised in the ACTPN report (including the dissenting opinion of the labor members of the Committee) deserve a fairer hearing. Accordingly, we commissioned Professor Dominick Salvatore of Fordham University to review and evaluate the evidence on the causes and effects of U.S.-Japan trade problems and alternative policy proposals for solving these problems. We asked him to examine these issues through the prisms of his own work and the work of other major intellectual protagonists in the trade debate.

Professor Salvatore's analysis shows that there are indeed valid economic reasons to believe that Japanese industrial targeting and trade practices threaten U.S. industry—including high-technology sectors as well as "mature" industries. He demonstrates that Japan's competitive success in one industry after another results from deliberate strategic policies, rather than the operation of pure "free market" forces. He concludes that unless U.S. trade problems with Japan are resolved in a way that restores the competitiveness of leading American manufacturing industries, the U.S. risks loss of its technological leadership in the world and decline in its living standards at home.

Unless U.S. trade problems with Japan are resolved in a way that restores the competitiveness of leading American manufacturing industries, the U.S. risks loss of its technological leadership in the world and decline in its living standards at home.

Professor Salvatore is an advocate of free trade, and an opponent of unilateral protectionism. For this reason, the findings in his report should be of special interest to those concerned with U.S.-Japanese economic relations. What Professor Salvatore has to say will no doubt

be controversial, and not everyone will agree with all of his specific proposals. But his findings cannot be ignored. The once-solid phalanx of support for the blind and rigid policy of indifference to the national interest under the guise of "free trade" is beginning to crumble under the pressure of economic reality.

Professor Salvatore has demonstrated the intellectual courage to see the economic world as it now exists. It is time for those in charge of economic policy to do likewise. After reading this report, the burden of proof is now on those who advocate more complacency and inaction in the face of their continued failure to address the U.S.-Japanese trade imbalance.

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Jeff Faux
President
Economic Policy Institute

Executive Summary

The United States has two closely related trade problems with Japan. First, the bilateral U.S.-Japan trade deficit accounts for nearly half (40 percent) of the overall U.S. trade deficit. While bilateral trade deficits with other countries have been reduced substantially, the deficit with Japan has remained stubbornly in the neighborhood of $50 billion a year. Second, Japan is challenging U.S. technological leadership, not only in mature industries such as autos and steel, but also in high-tech sectors such as machine tools, computers, and electronics.

Japan is challenging U.S. technological leadership, not only in mature industries such as autos and steel, but also in high-tech sectors such as machine tools, computers, and electronics.

This report examines the nature, causes, and consequences of these twin trade problems with Japan. While the deficit problem is analyzed in depth, the micro trade and competitiveness problem is viewed as more serious and receives more attention. The emphasis throughout is on the long-term implications of U.S.-Japan trade problems for American economic growth and living standards.

The principal findings of the report are as follows:

■ While macroeconomic policies (including the U.S. budget deficit) account for part of the overall U.S. trade deficit, they do not fully explain the size and persistence of the bilateral deficit with Japan. In particular, the sharp depreciation of the dollar against the yen after 1985 had little effect in reducing the bilateral deficit. Relying on macroeconomic policies alone to solve the trade deficit would require an unrealistic degree of coordination with other countries, while failing to solve the deeper problems of declining industrial competitiveness and losing technological leadership.

■ Although the internal problems of the U.S. economy have contributed substantially to these deeper problems, Japanese strategic trade policies and industrial targeting have also had a significant effect. Japan has kept its domestic markets effectively closed to manufactured imports, while targeting export markets in one industry after another. In previous decades, it was mainly "mature" industries such as autos and steel which were affected. Today, Japan has moved into computers and capital goods, and is poised to enter aerospace. Under these circumstances, the industrial and technological basis of U.S. economic growth and living standards can legitimately be regarded as threatened.

While Japan has liberalized sectors that are already competitive, it has not abandoned its industrial targeting in sectors currently deemed strategic.

■ While market-opening measures in Japan are warranted, efforts to achieve these via negotiations have thus far achieved few concrete results. And while Japan has liberalized sectors that are already competitive, it has not abandoned its industrial targeting in sectors currently deemed strategic.

■ The United States must therefore take more direct, results-oriented measures to address its twin trade problems with Japan, in addition to

efforts to remedy domestic competitive shortcomings. In the present situation, an import surcharge on manufactures is a useful policy device, both for its immediate effects in curbing imports and raising government revenue, and for increasing U.S. bargaining leverage in trade negotiations. Clear targets for Japanese imports of manufactured and high-tech products could then be set which would result in suspension of the surcharge. The precise application of the surcharge in terms of the products and countries to be covered depends on how important are three problems: (1) the potential for evasion; (2) the principle of nondiscrimination; and (3) U.S. dependency on imported inputs. In addition, the U.S. should be willing to aid strategic domestic industries which are targeted for export drives by Japan (or other foreign countries).

General measures to enhance U.S. competitiveness are worthwhile not just for their own sake, but more specifically for their potential to meet the long-run Japanese challenge.

■ More general measures to enhance U.S. competitiveness are worthwhile not just for their own sake, but more specifically for their potential to meet the long-run Japanese challenge. Some of these measures include greater support for education and training, refinancing the Export-Import Bank, and promoting industry associations to develop and commercialize new technologies.

Introduction

The United States now has a trade deficit with practically all of its major trade partners. While trade need not, of course, be balanced bilaterally with each country, the U.S. trade deficit with Japan in particular has grown so large and persistent in recent years that the United States can be said to have a specific trade problem with Japan. Moreover, during the past decade or so, the United States has lost competitiveness with respect to Japan in one industry after another. There are now only a few high-tech industries in which the United States retains undisputed leadership over Japan. But even in these Japan is gaining fast and may surpass the United States by the turn of the century in the absence of corrective action. Thus, the United States-Japan trade problem has two interrelated aspects: (l) the bilateral deficit with Japan is a disproportionately large part of the overall or macro trade deficit; and (2) the changing composition of U.S.-Japan trade reflects a growing loss of U.S. technological competitiveness at the micro level.

The changing composition of U.S.-Japan trade reflects a growing loss of U.S. technological competitiveness at the micro level.

The view that the United States has a serious competitiveness problem vis-a-vis Japan has been advanced before by Prestowitz (1988), Fallows (1989), and the MIT Commission on Industrial Productivity (Dertouzos, *et al.*, 1989), among others. The MIT study *Made in America* opens with the following statement:

> Late in 1986 the Massachusetts Institute of Technology convened its first commission on a major national issue since World War II. We did this to address a decline in U.S. industrial performance perceived to be so serious as to threaten the nation's economic future. (Dertouzos, *et al.*, 1989, p. *ix*)

Many economists and the present Administration in Washington, however, seem to believe that the problem is overstated and, even more importantly, reject the calls for strong U.S. action in the trade and competitiveness fields to overcome the problem. This report seeks to show in a systematic way that the United States does indeed have a serious trade and competitiveness problem with Japan and to demonstrate the need for strong action on the part of the United States to resolve these two closely interrelated problems.

Many economists and the present Administration in Washington . . . seem to believe that the problem is overstated and . . . reject the calls for strong U.S. action .

The next section briefly examines the casues of the overall U.S. trade deficit and its largest component, the bilateral deficit with Japan. The following section then examines in detail the specific micro-level roots of U.S.-Japan trade problems. These analyses then form the basis for discussing and evaluating the various policy measures that could be used to address the United States-Japan trade and competitiveness problems. In the *trade* field, it is advocated that the United States continue to pursue results-oriented trade opening negotiations with Japan, as mandated by the Super 301 provision of the 1988 Trade Act, but also impose some kind of temporary import surcharge on certain

types of manufactured goods, to be phased out as Japanese markets are opened more widely to U.S. high-tech products and the bilateral trade deficit is closed or sharply reduced. Among the specific *competitiveness* measures advocated are the sponsoring and partially financing (with tariff revenues) of industry research and development consortia in crucial high-tech fields to counter foreign targeting and stimulate U.S. technological advances. Without these types of measures the United States is likely to face even greater trade and competitiveness problems with Japan in the future.

Without these types of measures the United States is likely to face even greater trade and competitiveness problems with Japan in the future.

The U.S. Trade Deficit and Japan

The Overall Deficit

In 1971, the United States merchandise trade balance turned negative for the first time since the end of World War II. The U.S. has had a trade deficit in each year since then, with the exception of 1975. As Table 1 shows, the U.S. merchandise trade deficit rose from nearly $10 billion or 0.8 percent of gross domestic product (GDP) in 1972 to $43 billion, or 1.4 percent of GDP, in 1982. It increased sharply to $170 billion or 4 percent of GDP in 1986 and $174 billion or 3.9 of GDP in 1987, before declining to $130 billion or 2.5 percent of GDP in 1989. The U.S. trade deficit will rise again in the early 1990s in the absence of a much greater effort at containing it.

TABLE 1

U.S. Merchandise Trade and Trade Balance

(in billions of U.S. dollars, except as noted)

Year	Exports	Imports	Trade Balance (Exports-Imports)	GDP*	Trade Balance as Percent of GDP
1972	49.8	59.3	- 9.5	1201.6	-0.8
1976	115.4	132.5	- 17.1	1761.7	-1.0
1980	220.8	257.0	- 36.2	2684.4	-1.3
1981	233.8	273.4	- 39.6	3000.5	-1.3
1982	212.3	254.9	- 42.6	3114.8	-1.4
1983	200.5	269.9	- 69.4	3355.9	-2.1
1984	217.9	341.2	-123.3	3724.8	-3.3
1985	213.1	361.6	-148.5	3970.5	-3.7
1986	217.3	387.1	-169.8	4194.5	-4.0
1987	250.4	424.1	-173.7	4461.2	-3.9
1988	322.4	459.5	-137.1	4847.3	-2.8
1989	364.0	492.9	-128.9	5198.4	-2.5

Note: Exports in f.o.b. prices; imports in c.i.f. prices.

*GDP is gross domestic product (equal to gross national product minus net factor income from abroad).

Source: IMF, *Direction of Trade Statistics*, and *International Financial Statistics*, various issues

The main sources of the U.S. trade deficits changed significantly from the 1970s to the 1980s.

The main sources of the U.S. trade deficits changed significantly from the 1970s to the 1980s. An important reason for the increase in the U.S. merchandise trade deficit between 1973 and 1981 was the 1973-1974 and 1979-1980 petroleum shocks, which led to sharply higher petroleum prices. As a result, U.S. petroleum imports rose from less than $8 billion in 1973 to nearly $80 billion in 1981. After 1981, however, petroleum prices fell and U.S. petroleum imports declined to $39 billion in 1988 before rising again to $50 billion in 1989. Meanwhile, U.S. imports of manufactures increased much faster than exports, especially of capital goods (in which the U.S. trade surplus declined from $46 billion in 1981 to $10 billion in 1988 and was $17 billion in 1989) and in automotive vehicles, parts and engines (where the U.S. trade deficit increased from $11 billion in 1981 to $55 billion in 1988 and was $51 in 1989).

The primary macroeconomic reason for the sharp increase in the overall U.S. trade deficit from 1980 to 1985 was the contrasting fiscal-monetary policy mix in the United States and abroad during this period. Specifically, after the sharp fiscal expansion during the 1981-1982 recession, budget deficits remained at historically very high levels in the United States (rising from 2 percent of GDP in 1981 to a high of 5.2 percent of GDP in 1983) as a result of Reagan's increase in military expenditures combined with tax reductions. At the same time, the monetary policy pursued by the U.S. Federal Reserve was generally tight during this period for fear of a resumption of rapid inflation, while relatively tight fiscal policies were followed by Japan and Germany. The combined result of these macro policies was to keep U.S. interest rates higher than they would otherwise have been, and to attract an inflow of foreign capital that financed roughly half of net national investment (U.S. Council of Economic Advisors, 1988, p. 101; Summers and Carroll, 1987, pp. 607-608). These huge capital inflows caused a sharp appreciation of the dollar between 1980 and 1985 which, in turn, contributed to the sharp increase in the U.S. trade deficit.

The primary macroeconomic reason for the sharp increase in the overall U.S. trade deficit from 1980 to 1985 was the contrasting fiscal-monetary policy mix in the United States and abroad.

Starting in February 1985, the dollar began to depreciate, and by the end of 1987, its international value was slightly below the 1980-1981 level (so that all of its previous overvaluation was eliminated). As Table 1 shows, however, the U.S. nominal trade deficit did not start declining until 1988 (the real trade deficit started to decline in 1987) and remained well above its 1980 level both in nominal and real terms. Economists have borrowed the term "hysteresis" from the field of physics to characterize the failure of a variable (such as the trade deficit) to return to an original equilibrium once the disturbance has been corrected (Krugman and Baldwin, 1987, p. 41).

The U.S. . . . trade deficit . . . remained well above its 1980 level [in 1989].

There are several reasons for the slow and insufficient response of the U.S. trade balance to the elimination of the dollar overvaluation. One is the lag from exchange rate changes to changes in the price of traded commodities, from price changes to changes in purchases, and from the latter to actual shipments and data recordings. Another is the deterioration in the trade balance that usually follows immediately after a depreciation of the nation's currency, because import prices tend to rise before any longer term improvement in export and import quantities occurs. With the dollar continuing to depreciate between 1985 and 1987, the U.S. trade balance continued to deteriorate throughout this period (the so-called "rolling or cascading" J-curve effect). Still another reason for the inadequate response of the U.S. trade balance to the dollar depreciation was the willingness of foreign firms to absorb out of profits most of the increase in the dollar price of their exports resulting from the dollar depreciation, in order to retain newly acquired shares of the U.S. market (Baldwin's, 1988, "beachhead" effect). These forces will not be elaborated here since they have been adequately examined elsewhere (see, for example, Salvatore, 1989b).

The huge and persistent U.S. overall trade deficits can create several potentially serious problems for the United States in the long run. One is the possibility of a financial collapse (see Marris, 1985 and 1987). At some point, Japan and Germany (the major trade surplus countries and lenders to the United States) may become increasingly reluctant to continue to lend to the United States. Indeed, Germany is now expected to invest primarily in the eastern part of the reunified country and invest less abroad during the 1990s. The drying up of these huge capital inflows could potentially trigger a run on the dollar unless interest rates were increased sharply, which, however, could lead to a severe recession in the United States. A second problem is that much more painful sacrifices might be required to solve the trade deficit through macro adjustments (fiscal austerity and dollar depreciation) alone unless underlying structural/competitiveness problems are also addressed at the same time (see Dornbusch, *et al.*, 1989). A third problem is the rising external indebtedness of the United States. At the end of 1989 the United States had a net foreign debt of $663.7 billion (the mirror image of the total accumulated U.S. trade deficits), which requires net service (interest) payments to foreigners of more than $30 billion per year. This imposes a huge servicing and repayment burden on future generations. In order to restore current account balance, and thus to stop the growth of the foreign debt, the United States will eventually have to run a merchandise trade *surplus*.

Much more painful sacrifices might be required to solve the trade deficit through macro adjustments alone unless underlying structural/ competitiveness problems are also addressed at the same time.

Finally, another problem created by the continuing large U.S. trade deficits is that they destroy American jobs. Duchin and Lange (1988, pp. 1-2) concluded that U.S. trade deficits from 1984 to 1987 resulted in a loss of 5.1 million U.S. job opportunities in the United States, of which 3.1 million, or 60 percent, were in manufacturing, and 2.5 million were high-wage jobs paying more than $400 per week. The authors point out that while the estimate of 5.1 million job opportunities lost is very large when compared with the 7.4 million workers that were officially listed as unemployed in 1987, the official figures grossly understate the magnitude of excess labor capacity in the United States. Mishel and Simon (1988, p. 19) estimated that in 1987 there were over 1 million discouraged workers (i.e., workers who would re-enter the labor market if they felt that they could find work) and another 5 million part-time workers who wanted to work full time. Also, the quality of jobs in the United States has deteriorated as a result (see the Tyson-Zysman and Dickens-Lang articles in L. Tyson, W. Dickens, and J. Zysman, eds., 1988).

The U.S. bilateral trade deficit with Japan is so extraordinary in size, composition, and origin that it must be regarded as a special case .

The Bilateral Deficit with Japan

Accounting as it does for more than 60 percent of the increase in the U.S. overall trade deficit from 1980 to 1989 and more than 40 percent of the U.S. trade deficit in 1989, the U.S. bilateral trade deficit with Japan is so extraordinary in size, composition, and origin that it must be regarded as a special case, to be treated separately. Table 2 shows how the U.S.-Japan bilateral trade balance has changed over time. The table shows that the U.S. bilateral merchandise trade deficit with Japan increased

from about $4 billion in 1972 to a high of nearly $60 billion in 1987, before falling to nearly $56 billion in 1988 and $50 billion in 1989.

From Table 2, we can calculate that U.S. imports from Japan were more than 10 times larger in 1989 than in 1972 and more than 2.8 larger than in 1980, while U.S. exports to Japan in 1989 were 8.8 times larger than in 1972 but only 2.1 times larger than in 1980 (even after the jump in U.S. exports to Japan that took place in 1988 and 1989). With U.S. imports from Japan growing relatively faster than U.S. exports to Japan, the U.S. bilateral trade deficit with Japan increased in practically each year until 1987. The U.S. bilateral trade deficit with Japan accounted for about 44 percent of the overall U.S. trade deficit in 1989. Indeed, since the bilateral deficit with Japan has fallen proportionately less than the overall deficit in the last two years, the Japanese share of the remaining overall deficit has risen sharply.

TABLE 2

U.S.–Japan Bilateral Merchandise Trade and Trade Balance

(in billions of U.S. dollars, except as noted)

Year	Exports	Imports	Trade Balance (Exports–Imports)	Percentage of Total U.S. Trade Deficit
1972	5.0	9.1	- 4.1	43.2
1976	10.2	15.5	- 5.3	31.0
1980	20.8	33.0	-12.2	33.7
1981	21.8	39.9	-18.1	45.7
1982	21.0	39.9	-18.9	44.4
1983	21.9	43.6	-21.7	31.3
1984	23.6	60.4	-36.8	29.8
1985	22.6	72.4	-49.8	33.5
1986	26.9	85.5	-58.6	34.5
1987	28.2	88.1	-59.9	34.5
1988	37.7	93.2	-55.5	40.2
1989[a]	43.9	93.6	-49.7	43.9

[a]Preliminary figures (U.S. Department of Commerce, *Survey of Current Business*, March 1990, Vol. 70, No. 3).

Source: IMF, *Direction of Trade Statistics*, various issues.

The U.S. trade deficit with the 12 countries of the European Economic Community has declined sharply since 1986 . . . while the deficit with Japan decreased relatively little.

Table 3 shows the distribution of the overall U.S. trade deficit among its major trade partners. The $49.7 billion U.S. bilateral trade deficit with Japan in 1989 was nearly four times larger than the U.S. trade deficit with Taiwan, the second largest U.S. trade deficit, and nearly six times larger than the U.S. trade deficit with Brazil, Canada and Germany, which represent, respectively, the third, the fourth, and fifth largest U.S. trade deficit. Indeed, the U.S. bilateral trade deficit with Japan in 1989 was larger than the *sum* of the five next largest trade deficits (with Taiwan, Brazil, Canada, Germany, and Korea). It should be noted that the U.S. trade deficit with the 12 countries of the European Economic Community (EEC) has declined sharply since 1986 and was less than $1 billion in 1989, while the deficit with Japan decreased relatively little, and remained nearly $50 billion in 1989. It is clear, therefore, that Japan

accounts for the lion's share of the overall U.S. trade deficit, and that the deficit with Japan is more persistent than the overall deficit.

TABLE 3

U.S. Bilateral Trade Balances

(in billions of U.S. dollars)

Country or Area	1980	1985	1986	1987	1988	1989[a]
Japan	-12.2	-49.8	-58.6	-59.9	-55.5	-49.7
EEC	18.9	-22.6	-26.3	-24.3	-12.8	- 0.7
Germany	- 1.3	-12.2	-15.5	-16.3	-13.1	- 8.3
France	2.0	- 3.9	- 3.4	- 3.3	- 2.6	- 1.3
U.K.	2.4	- 4.3	- 4.6	- 3.9	- 0.3	2.4
Italy	0.8	- 5.8	- 6.5	- 6.2	- 5.5	- 4.8
Canada	- 6.6	-22.1	-23.4	-14.1	-12.2	- 8.5
Brazil	0.4	- 5.0	- 3.4	- 4.4	- 5.7	- 8.7
Mexico	2.3	- 5.9	- 5.2	- 5.9	- 2.9	- 3.6
Taiwan[b]	- 2.8	-11.2	-14.6	-17.5	13.0	-13.3
Korea	0.3	- 4.7	- 7.1	- 9.9	- 9.9	- 6.7
Hong-Kong	- 2.3	- 6.2	- 6.3	- 6.5	- 5.1	- 3.4
Singapore	1.0	- 0.9	- 1.5	- 2.3	- 2.5	- 1.6
Oil Exporting Countries	-40.2	- 9.6	- 9.3	-13.6	-10.2	- 6.8

[a]Preliminary figures (Source: U.S. Department of Commerce, *Survey of Current Business*, March 1990).

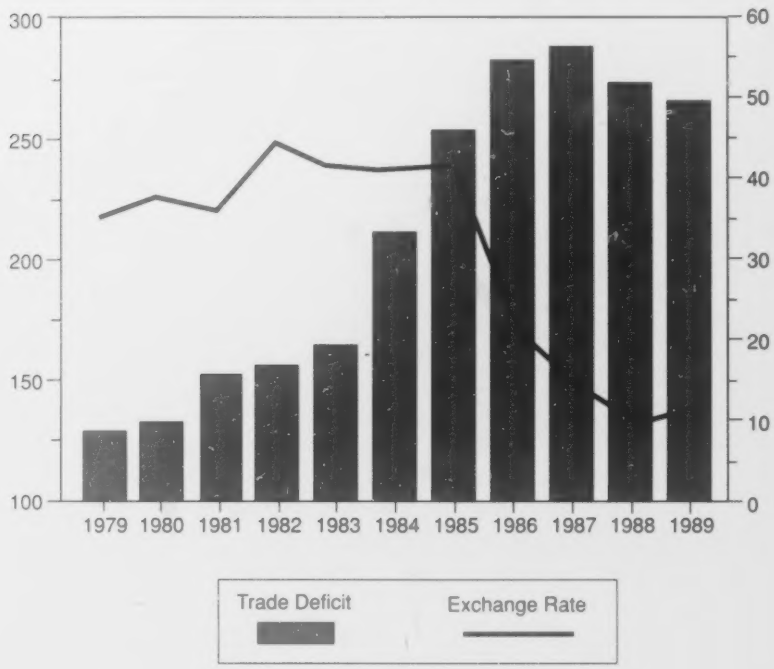
[b]From U.S. Department of Commerce, *Survey of Current Business*, various issues.

Source: IMF, *Direction of Trade Statistics*, various issues

Although the overall U.S. trade deficit is often blamed on exchange rate misalignment (an overvalued dollar), this is clearly not the cause of the bilateral deficit with Japan. As Figure 1 shows, this bilateral deficit rose steadily in the early 1980s, while the value of the dollar in yen stayed roughly constant. The dollar actually fell slightly against the yen from 1982 to 1985, yet some of the biggest increases in the bilateral deficit were recorded in 1984 and 1985. In the late 1980s, the dollar depreciated substantially against the yen, from an average of 238 yen in 1985 to 128 in 1988. This massive depreciation produced only a small reduction in the bilateral deficit. Indeed, this is exactly why the Japanese share of the overall deficit rose at the end of the decade: the U.S. was relying mainly on dollar depreciation to solve its trade deficit, but this strategy was ineffective with the very country which accounted for the lion's share of the overall deficit.

Although the overall U.S. trade deficit is often blamed on exchange rate misalignment (an overvalued dollar), this is clearly not the cause of the bilateral deficit with Japan.

Figure 1
U.S. Bilateral Merchandise Trade Deficit with Japan and the Yen per Dollar Exchange Rate



Note: Merchandise trade data for 1989 are preliminary figures.
Sources: U.S. Department of Commerce, Census Bureau; Federal Reserve

The fact that the U.S.-Japan bilateral trade imbalance seems so insensitive to exchange rate changes suggests that there may be an important structural component to this imbalance.

The fact that the U.S.-Japan bilateral trade imbalance seems so insensitive to exchange rate changes suggests that there may be an important structural component to this imbalance. In this regard, a comparison of Japan's bilateral trade with the United States and the European Economic Community is very instructive. Table 4 shows that Japanese exports to the United States increased from 24.4 percent of total Japanese exports in 1980 to 34.1 percent in 1988 (a 40 percent increase), while Japanese exports to the EEC rose only from 14 percent to 17.8 percent (a smaller than 27 percent increase).[1] On the other hand, Japanese imports from the United States increased from 17.4 percent in 1980 to 22.5 percent of total Japanese imports (a 29 percent increase), while Japanese imports from the EEC more than doubled from 5.9 percent in 1980 to 12.9 in 1988. With Japanese exports to the United States rising much faster than Japanese exports to the EEC, but with Japanese imports from the United States rising much more slowly than Japanese imports from the EEC, Japan's trade surplus with the United States increased much faster than Japan's trade surplus with the EEC. Indeed, from Table 5, we see that Japan's bilateral trade surplus with the United States increased

from $7.3 billion in 1980 to $48.0 billion (a 6.6-fold increase) as compared with an increase in Japan's bilateral trade surplus with the EEC from $9.8 billion to 23.0 billion (a 2.3-fold increase). The same is true for Japan's bilateral trade surplus with Germany only. Table 5 also shows that Japan's trade surplus with the United States in 1988 represented 61 percent of Japan's overall total trade surplus for that year.

Further evidence that the U.S.-Japan trade imbalance is structural rather than cyclical in nature is provided by the fact that while the sharp depreciation of the dollar after February 1985 practically eliminated the U.S. trade deficit with respect to the EEC and resulted in a 46 percent decline in the U.S. bilateral trade deficit with respect to Germany between 1986 and 1989, a similar depreciation of the dollar with respect to the Japanese yen improved the U.S. trade balance with Japan only by 15 percent (see Figure 1 and Table 3). With the yen depreciating since the beginning of 1989, we can expect a reversal in the improvement in the U.S. bilateral trade balance with Japan when the lagged trade response takes place in the next year of so (if everything else remains the same).

These trends beg the question as to the reason for such a massive shift in the geographical composition of Japan's surplus from the EEC to the United States during the 1980s. One reason often given is that the United States is the largest, richest and, therefore, most coveted market in the world. A more important reason for Japan's stunning success in the American market may instead be that, in spite of all the statistics showing that the level of tariff and nontariff protection in the United States is not too dissimilar from the overall level of protection in the EEC, the American market is, in fact, much more open than the European market. It seems that Europe simply does a much better job of protecting its markets and of extracting reciprocal trade concessions from Japan than the United States. Indeed, the Office of the U.S. Trade Representative (1990) lists more than twice as many formal and informal trade barriers against U.S. exports by Japan as by the entire EEC.

Europe simply does a much better job of protecting its markets and of extracting reciprocal trade concessions from Japan than the United States.

TABLE 4

The Changing Geographical Composition of Japan's Trade

(percentages)

	Exports		Imports	
Year	U.S.	EEC	U.S.	EEC
1980	24.4	14.0	17.4	5.9
1985	37.6	11.9	20.0	7.2
1986	38.9	14.8	23.0	10.9
1987	36.7	16.6	21.2	11.9
1988	34.1	17.8	22.5	12.9

Source: IMF, *Direction of Trade Statistics*, various issues

TABLE 5

Japan's Total and Bilateral Trade Balances

(in billions of U.S. dollars)

Country or Area	1980	1985	1986	1987	1988
Total Trade Balance	-10.9	46.7	83.2	80.3	77.5
With U.S.	7.3	40.6	52.5	53.0	48.0
With EEC	9.8	11.7	16.9	20.4	23.0
With Germany	3.3	4.1	6.3	6.8	7.7
With Oil Exporting Countries	-39.6	-26.0	-13.8	-16.7	-16.8

Note: The Japanese trade deficits with the U.S. in this table differ from the U.S. deficits with Japan in Table 2 because each country's exports are measured in f.o.b. prices while its imports are given in c.i.f. prices.

Source: IMF, *Direction of Trade Statistics*, various issues

While the United States has been widely criticized both at home and abroad for imposing voluntary export restraints on automobile exports from Japan, Japan was able to capture 34 percent of the U.S. market.

A good example of this asymmetry is the automobile industry. While the United States has been widely criticized both at home and abroad for imposing voluntary export restraints (VERs) on automobile exports from Japan, Japan was able to capture 34 percent of the U.S. market (23 percent through exports and another 11 percent through the U.S. production of Japanese transplants) (*Wall Street Journal*, February 16, 1990, p. 1), but less than 10 percent of the European market (less than 3 percent of the French market, and only 2,200 automobiles per year in Italy).[2] And, by every account, the U.S. auto industry is not less efficient than European automakers. For example, the MIT study (Dertouzos, *et al.*, 1989, p. 186) reports that, on the average, it takes 19 hours to assemble a vehicle in Japan, 20 hours in a Japanese transplant in the United States, 27 hours in a U.S. plant, and 36 hours in Europe. Also, defects per 1,000 vehicles average 52 in Japan, 56 in U.S. transplants, 90 in U.S. plants, and 173 in Europe. *Fortune* magazine (January 29, 1990, p. 97) concludes: "The Europeans are the world's least efficient carmakers."

Thus, the shift in Japan's bilateral trade and trade balances with the United States and Europe may be due in large part to the Europeans playing the reciprocity game much more effectively than the United States, rather than to the operation of free market forces. Bluntly, Europe's more effective trade restrictions may have kept its absolute and relative trade deficit with Japan from increasing as fast as that of the United States. American carmakers have understood this and have been expanding their productive capacity in Europe at the same time that they have been forced to reduce it in the United States as a result of Japanese competition (*Wall Street Journal*, February 2, 1990, p. 1).

It cannot be denied, of course, that the macroeconomic factors discussed earlier have contributed to the U.S.-Japanese bilateral deficit, as well as to the overall U.S. trade deficit. But the persistence of that bilateral deficit in spite of major exchange rate adjustments, as well as the difference between Japanese success in penetrating the U.S. and European markets, suggest that there are deeper, structural roots of the

U.S. trade imbalance with Japan. In order to identify these roots, it is necessary to examine the microeconomic trade relationship between the U.S. and Japan, to which we now turn.

Europe's more effective trade restrictions may have kept its absolute and relative trade deficit with Japan from increasing as fast as that of the United States.

U.S. Micro Trade Problems with Japan

An examination of micro-level trade problems between Japan and the United States is important for two reasons. First, these problems may account for the unusual size and persistence of the bilateral trade imbalance between these two nations, as discussed in the previous section. That is, problems at the level of industrial organization and public policy in individual industries may constitute the "structural factors" which make the U.S.-Japanese trade deficit so difficult to overcome by traditional adjustment methods (e.g., dollar depreciation). Second, these industrial and trade practices at the micro level may be significant in their own right, for their effects on the development of the U.S. economy. In particular, the loss of U.S. technological leadership and its implications for U.S. competitiveness will be highlighted.

The sharp decline in U.S. competitiveness in high-technology products in relation to Japan is potentially much more dangerous to the future well-being of the United States than the large trade deficits.

Indeed, the sharp decline in U.S. competitiveness in high-technology products in relation to Japan is potentially much more dangerous to the future well-being of the United States than the large trade deficits with the rest of the world and with Japan, serious as those are. One could well imagine a situation in which the United States had no bilateral trade deficit with Japan, but where most U.S. imports from Japan consisted of leading-edge technological products while its exports consisted mostly of agricultural products and raw materials. Since most of the growth in productivity and the standard of living depends on the introduction of advanced technology (Denison, 1989), this type of trade pattern could only foreshadow an accelerating trend of slower growth and decline in standards of living in relation to Japan (and perhaps even in relation to the countries of Western Europe and the Newly Industrializing Countries).

Such a gloomy scenario cannot be dismissed out of hand. After another five or ten years of deterioration in the competitive position of the United States of the same order of magnitude (measured, say, by Japanese import penetration of the U.S. economy and U.S. loss of world-markets share in high-tech products) as that which occurred during the 1980 to 1985 period, the United States could potentially lose its ability to effectively compete in most high-technological products with Japan, and in some even with Western Europe.

The way Japan organizes its domestic business operations and its international trade . . . [is] characterized by unusual obstacles to imports.

The Closed Japanese Market

An important factor in explaining Japan's huge trade surplus with the United States, as well as Japan's increasing technological competitiveness, is the way Japan organizes its domestic business operations and its international trade. In comparison with other industrialized countries, Japan represents a unique case, characterized by unusual obstacles to imports. As Lawrence (1989c, p. 1) states: "Almost all outsiders agree that Japanese trading practices are a problem. Japan's trade structure is unusual because its manufactured imports are so low."

Table 6 shows that while import ratios in manufacturing for Japan decreased between 1975 and 1986 for imports from the rest of the world and from the 24 member countries of the Organization for Economic Cooperation and Development (OECD), the corresponding import ratios for the United States and Germany (a country which has a similar economic structure to Japan's) increased sharply. From 1975 to 1986, the average import penetration ratio for manufactured goods from all countries rose from 7.0 to 13.8 percent in the United States, and from 24.3 to 37.2 percent for Germany, but actually *declined* from 4.9 to 4.4 percent in Japan. For the same years, the import penetration for manufactured goods from the OECD countries rose from 4.9 to 9.3 percent for the United States, and from 20.5 to 30.6 for Germany, but *declined* from 2.9 to 2.6 percent for Japan. The ratio for imports from developing countries rose from 2.1 to 4.2 percent for the United States, from 2.6 to 4.4 percent for Germany, but remained unchanged at 1.8 percent for Japan.

Japanese import ratios for manufactures are indeed lower than should be expected for a country with Japan's economic structure and level of development.

TABLE 6

Import Ratios in Manufacturing, 1975, 1985, and 1986

(imports as percentage of apparent consumption)

Imports From:	United States	Germany	Japan
World			
1975	7.0	24.3	4.9
1985	12.9	39.5	5.4
1986	13.8	37.2	4.4
OECD			
1975	4.9	20.5	2.9
1985	8.8	32.5	3.2
1986	9.3	30.6	2.6
Developing Countries			
1975	2.1	2.6	1.8
1985	3.9	4.5	2.0
1986	4.2	4.4	1.8

Note: Apparent consumption equals domestic production plus imports, minus exports.

Source: Advisory Committee for Trade Policy Negotiations, Analysis of the U.S.-Japan Trade Problem, Washington, DC, February 1989, p. 10

In the past, Saxonhouse (1983) and Bergsten and Cline (1985) argued that Japan's low import ratios for manufactures could be explained by its relatively resource-poor base, by its geographical distance from other world markets, and its other economic attributes. More recently, however, Lawrence (1987) and Balassa and Noland (1988) have found that Japanese import ratios for manufactures are indeed lower than should be expected for a country with Japan's economic structure and level of development. Lawrence (1987, pp. 519-523) points out that Saxonhouse had based his study on the Heckscher-Ohlin trade model.[3] According to this model, a country should export those products which

use relatively large amounts of its relatively abundant resources, and import those products which use relatively large amounts of its relatively scarce resources. Saxonhouse reasoned that since Japan is poor in natural resources, but abundant in labor and capital, Japan should be expected to import primary products and export manufactured goods. However, the Heckscher-Ohlin model is only valid under certain assumptions which are clearly not valid in the case of U.S.-Japanese trade. For example, the model assumes that all markets (domestic and international) are perfectly competitive; that all countries have identical (and unchangeable) technological capabilities; that there are no economies of scale in industry; and that capital is immobile internationally.

Trade policies can be used to capture technological advantages for a nation's firms through "learning effects."

New models of international trade have been developed which deal with the implications of dropping such unrealistic assumptions (see Krugman, 1990). These models show, for example, that trade can be based on scale economies rather than resource abundance, and that trade policies can be used to capture technological advantages for a nation's firms through "learning effects"—especially when markets are oligopolies dominated by a few large firms. The new models recognize the importance of intra-industry trade, in which countries with similar levels of income and development export similar types of manufactured products to each other. According to these new trade models, Japan should be expected to import substantial (and growing) proportions of manufactured goods, in addition to the primary products it cannot produce at home. Lawrence (1987) found that, when the new trade models are applied to Japan, Japan's imports of manufactured goods from the United States were about 40 percent lower than would be expected. Balassa and Noland (1988, p. 70) similarly estimated Japan's imports of all goods to be between 25 and 45 percent lower than they should be, based on Japan's industrial structure, size, and level of economic development. We can roughly estimate that increasing Japanese imports by 40 percent (using Lawrence's estimates) would have raised Japanese imports from the United States by about $15 billion, from $37.2 billion to $52.1 billion, in 1988, thereby reducing the U.S. bilateral trade deficit with Japan from about $53 to $38 billion (ignoring other possible repercussions).[4]

A strong indirect test that Japan imports too little is provided by comparing prices for traded commodities in Japan and the United States.

Srinivasan and Hamada (1989) criticized all of these studies. They criticized Saxonhouse for basing his study on an inappropriate trade theory, Lawrence for misspecifying his estimation equation, and Balassa and Noland for using a model that was not clearly derived from theory. Srinivasan and Hamada argued that these types of empirical tests do not settle the issue. Lawrence (1989a) responded by pointing out that a strong indirect test that Japan imports too little is provided by comparing prices for traded commodities in Japan and the United States. He estimated that goods prices in Japan in 1987 were 85.6 percent higher than in the United States. Without trade barriers, international commodity arbitrage (i.e., the purchasing of goods where they are cheaper and reselling them for a profit where they are more expensive) would

have eliminated international price differences in the two nations (except for transportation costs). Thus, international price comparisons strongly suggest that Japan has relatively high trade barriers that effectively restrict imports of manufactured goods—at the expense of Japanese consumers.

According to Lawrence, Balassa and Noland, Kreinin, and others, Japan's unique distribution system, favoring as it does domestic suppliers, and Japanese preferences for domestic goods provides a very effective informal system of protection against imports. For example, Kreinin (1988, pp. 529-530) writes:

> American manufacturers continuously complain that the Japanese are reluctant to purchase foreign products, that the market is 'cornered' by their Japanese competitors through a web of long-standing business relationships and that it is difficult, if not impossible, to penetrate this 'old boys network'. . . . The complaints are centered on business and consumer practices, based on the domestic social environment and cultural tradition, that deny entry to foreign-made products.

Japan's unique distribution system, favoring as it does domestic suppliers, and Japanese preferences for domestic goods provides a very effective informal system of protection against imports.

One specific large obstacle in the Japanese distribution system is that it is nearly impossible to open foreign stores in Japan (*Wall Street Journal*, April 9, 1990, p. 1). Another is the approval process required to open large Japanese retail stores, which are more likely to carry foreign products. Such openings are usually opposed by small shopkeepers who have close relationships with domestic producers and distributors, and can sometimes delay action for up to ten years (*New York Times*, April 6, 1990, p. 1).

It is nearly impossible to open foreign stores in Japan.

Strong indirect evidence that the Japanese distribution system effectively restricts imports is provided by a joint U.S. Department of Commerce and Japan Ministry of International Trade and Industry (1989) study which reported that 84 of the 122 traded products surveyed in 1989 were more expensive in Japan than in the United States by an average of 41 percent. This was the case even for many products produced in Japan. The only category of goods found to be less expensive in Japan was electronic products, the one U.S. industry that has largely disappeared because of the success of the Japanese. This brings us to the proverbial other side of the coin: the increased competitiveness of Japanese products, especially in advanced manufacturing sectors.

Declining Manufacturing Competitiveness

Table 7 shows the changing composition of U.S. trade with Japan from 1972 to 1988 in (1) office and telecommunications equipment, (2) machine tools, (3) other machinery (such as power generating machinery) and transport equipment (such as railway vehicles and aircraft), and

(4) total engineering products (which includes all of the above categories as well as automobiles and automobile parts and engines). The first three classifications include all the suppliers (as opposed to the users) of high technology and is of particular relevance in evaluating the change in the competitive position of the United States vis-a-vis Japan during the past two decades. While such mature industries as automobile, steel, and textile are very dynamic in terms of production technology and product quality, they are users rather than suppliers of high technology, and it is the latter that determine a nation's technological leadership, on which we now want to concentrate.

TABLE 7

Changing Composition of U.S. Trade in High-Tech Manufactured Goods with Japan

(in billions of U.S. dollars, except as noted)

Year	Exports	Imports	Trade Balance	Trade Balance as Percent of Manufactured Exports	Trade Balance as Percent of Total Exports
			Office and Telecommunications Equipment		
1972	0.3	0.5	- 0.2	- 0.6	- 0.4
1976	0.4	1.0	- 0.6	- 0.8	- 0.5
1980	0.9	2.5	- 1.6	- 1.1	- 0.8
1985	1.8	9.9	- 8.1	- 5.5	- 3.8
1986	2.0	11.6	- 9.6	- 6.2	- 4.5
1987	2.6	13.9	-11.3	- 6.3	- 4.6
1988	3.7	16.8	-13.1	- 5.7	- 4.1
			Machine Tools		
1972	0.3	0.3	- 0.0	—	—
1976	0.5	0.8	- 0.3	- 0.4	- 0.3
1980	0.9	2.3	- 1.4	- 1.0	- 0.7
1985	1.0	5.7	- 4.7	- 3.2	- 2.2
1986	0.9	6.7	- 5.8	- 3.7	- 2.7
1987	0.9	7.5	- 6.6	- 3.7	- 2.7
1988	1.5	8.4	- 6.9	- 3.0	- 2.2
			Other Machinery and Transport Equipment		
1972	0.8	1.1	- 0.3	- 0.9	0.6
1976	0.9	1.7	- 0.8	- 1.1	0.7
1980	2.3	3.6	- 1.3	- 0.9	0.6
1985	3.2	7.5	- 4.3	- 2.9	2.0
1986	3.8	9.1	- 5.3	- 3.4	2.5
1987	4.3	10.6	- 6.3	- 3.5	2.6
1988	5.4	12.7	- 7.3	- 3.2	- 2.3
			Total Engineering Products		
1972	1.4	5.6	- 4.2	-12.7	- 8.8
1976	2.0	10.7	- 8.7	-11.6	- 7.9
1980	4.4	24.8	-20.4	-14.6	- 9.6
1985	6.4	59.0	-52.6	-35.4	-24.9
1986	7.1	72.0	-64.9	-41.6	-30.2
1987	8.2	74.2	-66.0	-36.8	-27.1
1988	11.4	77.7	-66.3	-28.6	-20.7

Source: GATT, *International Trade*, Geneva

From Table 7, we see that while the U.S. competitive position with Japan in high-tech products deteriorated throughout the 1972-1988 period, the deterioration rose to truly massive proportions from 1980 to 1985. In five short years, the United States developed a very large trade deficit with Japan in all these high-tech sectors both in absolute and relative terms. From 1980 to 1985, the U.S. bilateral trade deficit with Japan increased from $1.6 to $8.2 billion in office and telecommunications equipment, from $1.4 to $4.7 billion in machine tools, from $0.9 to $2.9 billion in other machinery and transport equipment, and from $14.6 to $35.4 billion for all engineering products combined. The U.S. bilateral trade deficit with Japan increased from 14.6 to 35.4 percent of total U.S. manufactured exports to all nations and from 9.6 to 24.9 percent of all total U.S. exports.

In five short years, the United States developed a very large trade deficit with Japan in all these high-tech sectors both in absolute and relative terms.

The U.S. response to its competitive problems has varied between such mature industries as automobiles, steel, and textiles (which are mainly users of high technology), on the one hand, and such high-tech industries as consumer electronics, semiconductors and computers, machine tools, chemicals, and commercial aircraft (the suppliers of new technologies), on the other. It is useful for our subsequent analysis to briefly review at this point the competitive position in these industries.[5]

Faced with huge losses and large unemployment in the automobile, steel and textile industries, the United States has negotiated "voluntary" export restraints (VERs) with Japan and other major suppliers of these products during the past decade. These policies are credited with preventing the complete collapse of these industries in the United States. While trade protection allowed U.S. firms to increase productivity and improve product quality, U.S. firms did not in general pass on these cost reductions to consumers in the form of lower prices (and thus failed to regain lost market share) and earned huge profits (Salvatore, 1987b, pp. 5-6). During the past five years or so, U.S. firms in these industries were able to substantially narrow, but not to completely eliminate, the productivity and product quality gap they faced in relation to their Japanese counterparts and continued to lose market share to Japanese transplants (i.e., Japanese production in the United States) that sprung up since the imposition of VERs (*Wall Street Journal*, February 16, 1990, p. 1).

The United States has all but abandoned the consumer electronics industry.

The response was different in high-tech industries. The United States has all but abandoned the consumer electronics industry.[6] Today only one U.S. firm (the Zenith Corporation) produces TV sets, and it holds only about a ten percent share of the domestic market. Furthermore, Zenith imports many of its TV sets and parts from abroad. The United States has also lost its dominant position in memory chips both at home and abroad to the Japanese during the 1980s. Of the more than a dozen critical semiconductor technologies, the United States had a lead in only three in 1987 (Dertouzos *et al.*, 1989, p. 249). Continued U.S. leadership in computers is now endangered by the weakness of the U.S.

semiconductors industry and the collapse of the U.S. semiconductor equipment industry (see U.S. Congress, Office of Technology Assessment, 1989b).

The U.S. leadership position in machine tools has also been lost to Japan, in spite of some belated trade protection after most of the damage had been done. In chemicals, the United States has been able to hold its technological lead over Japan better than in most other industries. The major competition here, however, comes from the European giant chemical firms. These have been able to somewhat narrow the U.S. lead during the past decade and have recently been investing heavily in the United States (about one-third of U.S. chemical firms are now owned by foreigners).

The U.S. leadership position in machine tools has also been lost to Japan.

The only major high-tech industry in which the United States still holds an undisputable lead is commercial aircraft. But even here, Airbus Industry (a consortium of France, Germany, and the U.K.) has been able (with the aid of heavy and continued government subsidies) to capture a quarter of the world market, which until a few years ago was a virtual U.S. monopoly. Japan has also targeted this industry and may become a serious competitor in a decade or so. Despite denials to the contrary and special provisions to protect U.S. technological secrets, the 1989 Japanese-American FSX fighter project deal may, in fact, help Japan catch up to the United States in this crucial sector also. And in April, 1990, Boeing announced an agreement under which three major Japanese firms will produce between 15 and 20 percent of the new 767-X jet. Boeing's rationale for the joint project speaks volumes about U.S.-Japan trade relations: "it is crucial for the company to maintain a close working relationship with Japanese suppliers [in order] to maintain Boeing's sales to Japan" (Sugawara, 1990).

Japan has also targeted [commercial aircraft] and may become a serious competitor in a decade or so.

Causes of U.S. Manufacturing Trade Problems with Japan

What are the causes of this dramatic decline in U.S. competitiveness relative to Japan? The story of the "mature" industries is a familiar one. Starting from their vast technological superiority after World War II, operating in a large and unified domestic market, and sheltered to some extent from foreign competition, firms in some U.S. industries, especially automobiles and steel, became sluggish over time. In the 1950s and 1960s, U.S. steel producers were slow to develop and adopt new technologies, resulting in low productivity growth and rapidly rising costs (Adams and Mueller, 1986; Anderson and Kreinin, 1981). In the 1970s, U.S. automakers were slow to respond to the growing demand for smaller, more fuel-efficient, and more reliable cars (White, 1977; Anderson and Kreinin, 1981). At the same time, Japanese companies were reaping the benefits of strategic governmental support and long-term corporate planning, as well as taking advantage of the relatively closed Japanese domestic market discussed earlier. The Japanese steel firms achieved cost advantages in steel by the early 1970s (U.S. Federal

Trade Commission, 1977) while Japanese auto firms moved "upscale" into high value-added cars in the 1980s. And in the 1980s, just as U.S. steel and auto producers were trying to improve efficiency and respond to customer demands, these producers were hurt by the high value of the U.S. dollar which invited more imports into the American market (see Grossman, 1986, on the steel case).

The domestic causes of U.S. competitive problems in a high-tech industry such as semiconductors were somewhat different. Most U.S. producers in this industry were relatively small and sold only semiconductors (computer chips). These firms usually came into existence to exploit some important innovation, which they managed to introduce with small amounts of venture capital. After a few years of high growth and profits, these companies would sell stock to the public, making their entrepreneurs instant millionaires. In a highly volatile market such as semiconductors, where cycles of boom and bust often followed each other by only a few months, these firms generally took a short-run view of profits. Furthermore, their technology could easily be reverse-engineered and copied, and they lacked the resources to effectively defend it in protracted and costly legal battles. Lacking the resources to expand at home, and often precluded from selling or establishing production facilities abroad (especially in Japan), these firms often sold or licensed their technology to foreign firms (most often Japanese) in order to increase short-term revenues and profits.

Japanese steel firms achieved cost advantages in steel by the early 1970s, while Japanese auto firms moved "upscale" into high value-added cars in the 1980s.

In the long run, however, these U.S. firms were unable to compete with the much larger and vertically integrated Japanese competitors. The latter took a much longer time perspective and were able to sustain large losses in their semiconductors line (even for extended periods of time) from profits earned in their many other lines of business. The United States thus squandered its leadership position in an industry that only a few years earlier had been the pride of U.S. advanced technology and the envy of the entire world (including Japan).

Vertically integrated Japanese competitors . . . took a much longer time perspective and were able to sustain large losses in their semiconductors line (even for extended periods of time).

Mergers of small semiconductor firms with larger diversified U.S. corporations were not common because the latter were perceived to be slow to respond to new technological breakthroughs. When a few members of a research unit within a major corporation became dissatisfied with its slow and inflexible organizational structure, they often sought some outside venture capital and broke away from the corporation to start a new firm. This process, sometimes referred to as "vulture capitalism," was fairly frequent in the field of semiconductors and computers and it continues to this day.

A dramatic example of this occurred in May 1989 when Seymour Cray, the world's foremost supercomputer designer, together with a group of research associates, broke away from Cray Research Inc. (the world's leading supercomputer company that he himself had founded in 1972 by breaking away from the Control Data Corporation) to set up

his own new firm, Cray Computer Corporation. Cray's move occurred only a month after the Control Data Corporation itself (the only other full-fledged U.S. supercomputer supplier) abruptly dropped out of the supercomputer business, citing the prospect of Japanese competition and its failure to gain access to Japan's market. This provides a good example of the problems that face American firms as a result of their lack of "credible" government support. With Cray Computer Corporation underfunded and with Cray Research Corporation already relying on Fujitsu, the large Japanese competitor in supercomputers, for its internal memory chips, the U.S. leadership in this truly crucial field is also at risk.

American firms [face problems] as a result of their lack of "credible" government support.

As in the case for mature industries in the 1970s, a great deal of the blame for the loss of U.S. competitive edge in many high-tech industries during the 1980s also rests on Japan's trade and industrial policies. Japan's strategy for conquering a new industry is by now clear, having been successfully applied to a number of industries from steel and automobiles to semiconductors and robots.[7] In the first stage of this strategy, Japan restricts imports and foreign investments in the industry, coordinates the acquisition of technology abroad, and provides subsidies and tax advantages to master and introduce the new technology in the targeted industry. In the next stage, the government coordinates a massive expansion of industrial capacity facilitated by large availability and low cost of capital. In the third stage, the industry invades the world market, originally accepting very low profits or even losses while acquiring market share and continuing to improve technology and product quality.

Japan's strategy for conquering a new industry is by now clear, having been successfully applied to a number of industries from steel and automobiles to semiconductors and robots.

In the fourth and final stage, foreign countries, facing the prospect of demise of a major industry, restrict Japanese access to their market, often with voluntary export restraints, which grant substantial market share and ensure high prices and profits for Japanese firms. By this time, Japan has dismantled its own formal import restrictions in the targeted industry and asserts its belief in free trade. Japan has targeted the computer industry for the 1980s and the commercial aircraft and space industries for the 1990s. Without adequate American response, history is likely to repeat itself.

There are many who have asserted that the above characterization is grossly exaggerated. They observe that MITI (the powerful Japanese Ministry of International Trade and Industry) does not have much direct control over the Japanese economy, and has spent only very little seed money in some industries to have been able to pursue such a grandiose design. Krugman (1987b, p. 287), for example, argued that one of the allegedly most successful cases of industrial targeting by Japan, the steel industry, is no success at all because this industry has had consistently lower rates of return on investment than the national average. However, rates of return in the Japanese steel industry were higher than abroad during the 1970s and, more importantly, without an efficient steel

industry Japan could certainly not have built a world class automobile industry. Krugman (1987b, p. 293) also argued that in semiconductors "the returns are not yet in," but as we have seen the returns are now in—and they show Japanese producers having successfully displaced their American rivals.

Balassa and Noland (1988, pp. 35-42) present extensive evidence (mostly from Japanese sources) which clearly indicates that, while not all of MITI's targeting efforts have been successful and some did not operate always as intended, MITI was nevertheless crucial in contributing to Japan's stunning competitiveness and trade successes.[8] Shinohara (1988, p. 48) reports that "MITI used administrative guidance, import restrictions, coordination of investment in plant and equipment, merger and other methods of production consolidation, approval of cartels, postponing of liberalization of direct investment from outside, tax incentives for leading industries, lower interest loans, and other measures" (quoted in Balassa and Noland, 1988, p. 39). Yamamura and Vandenberg (1986, p. 269) point out that "the argument that the financial contribution made by the Japanese government is not a huge sum provides us with little comfort because of the profound impact the organization of research projects could have on the timing of innovation, on patterns of interfirm competition and cooperation, and on industrial structure" (quoted in Balassa and Noland, 1988, p. 39).

While not all of MITI's targeting efforts have been successful . . . MITI was nevertheless crucial in contributing to Japan's stunning competitiveness and trade successes.

All these studies conclude that MITI fostered competition at home by simultaneously promoting several domestic firms in targeted industries and encouraging exports at an early stage. Balassa and Noland (1988, p. 234) also report that if foreign companies apply for a crucial patent that gives them an important competitive advantage, MITI delays awarding the patent until Japanese producers have a chance to catch up or apply for patents to cover similar technology, and that it takes six years to register a patent in Japan (as compared with two years in the United States and one year in the United Kingdom) and during this time the foreign firm is very vulnerable to unauthorized copying of its invention by Japanese firms. Balassa and Noland (1988, p. 40) further quote an official 1987 U.S. report on negotiations in supercomputers which states that "Japanese authorities and industry are engaged in the early stages of a comprehensive program of industrial and technological targeting aimed towards dominance of the computer industry."

MITI fostered competition at home by simultaneously promoting several domestic firms in targeted industries and encouraging exports at an early stage.

There is also much evidence that Japan uses its closed domestic market as a vehicle for aiding the development of high-priority industries. For example, during the 1970s and early 1980s, U.S. semiconductor and telecommunications firms held less than ten percent and three percent, respectively, of the Japanese market at a time when they dominated the world market and were the undisputed technological leaders. The United States today supplies only six percent of the supercomputers bought by Japan's Government and publicly financed universities, while holding an 80 percent share of the world market (Office

of the United States Trade Representative, 1989, p. 103). Impartial observers readily admit that Japan is informally highly protectionist, especially in strategic sectors (see, for example, Dertouzos, *et al.*, 1989, pp. 252,256; Fallows, 1989, pp. 41,47; Archey, 1989, p. 4; Jeffries, 1987, pp. 96-97; Lawrence, 1987, pp. 538,547; Balassa and Noland, 1988, pp. 61-62; Kreinin 1988, pp. 540-541; U.S. Congress, Office of Technology Assessment, 1989a, p. 36; Advisory Committee for Trade Policy and Negotiations, 1989, pp. 11-12).

The United States today supplies only six percent of the supercomputers bought by Japan's Government and publicly financed universities, while holding an 80 percent share of the world market.

The rapid and sharp deterioration of the American semiconductor industry as a result of Japanese competition has ominous implications for the future competitive position in almost all high-technology industries in the United States. "Downstream industries" (i.e., industries using computer chips) are much larger than the semiconductor industry itself and produce the bulk of United States exports (Cohen and Donow, 1989). By withholding or delaying making its computer chips available to competing U.S. firms, the Japanese could also seriously affect the U.S. lead in computers. As pointed out by the MIT study (Dertouzos, *et al.*, 1989, p. 263) "American computer makers now obtain more than half of their semiconductors from Japan . . . from the same diversified companies that are their competitors in the computer market." The Office of Technology Assessment of the U.S. Congress (1989a, p. *iii*) pointed out that "Foreign companies have made deep inroads into high-technology markets that had been more or less the exclusive domain of U.S. industry. In addition to causing economic problems, this has fostered dependence on foreign sources for defense equipment at a time when the technology in defense systems comes increasingly from the civilian sector."

Industrial targeting was crucial to Japan's rapid rise to a high-technology leadership position.

From all of the above, we can safely conclude that (1) Japan does effectively restrict entry into its market either directly or through its unique distribution system and buyer preferences and (2) Japan does target industries. While there is disagreement on the effectiveness of such policies and how much of Japan's stunning competitiveness and trade successes can be attributed to targeting, evidence is mounting that industrial targeting was crucial to Japan's rapid rise to a high-technology leadership position. Of course, the causes of U.S. competitive and trade problems with Japan lie with both the United States and Japan. But in many of today's high-tech sectors, such as computers and telecommunications, as well as in many mature industries earlier, Japan's restrictive distribution system and industrial targeting were at least as important as domestic shortcomings.

Solving U.S. Trade and Competitiveness Problems with Japan

This section presents and evaluates various policies that are being or could be used to sharply reduce or eliminate the large U.S. overall and bilateral trade deficits, and to overcome the U.S. competitiveness problem with Japan. First, proposals for macroeconomic policy corrections (depreciation of the U.S. dollar, cutting the U.S. budget deficit, and international policy coordination) are considered. Then we turn to market-opening trade measures, and other more direct competitiveness policies. Since more than 40 percent of the U.S. overall trade deficit is now with Japan and since most U.S. high-tech trade problems are with Japan, the focus will inevitably be on Japan.

Macroeconomic Policy Proposals

While specific macro policy proposals for reducing the trade deficit vary in their details, all such proposals contain certain common key elements.[9] Such proposals generally begin by calling for reduction or elimination of the U.S. federal budget deficit. Often, although not always, this is accompanied by a parallel call for the leading surplus countries (Japan and Germany in particular) to adopt more expansionary fiscal policies. This reversal of fiscal policies at home and abroad should reduce the United States' need to borrow from abroad, as well as the foreign need to invest here, and thus help to reduce the U.S. current account imbalance. Sometimes, it is claimed that cutting the U.S. budget deficit alone would suffice to lower interest rates and bring the dollar down further. However, other economists maintain that this would require a significant loosening of U.S. monetary policy, either by itself or in combination with the fiscal tightening.

The fact that the bilateral deficit with Japan has been so unresponsive to the 1985-88 depreciation of the dollar suggests that a large part of the overall deficit cannot be solved by this method alone.

How effective dollar depreciation would be in eliminating the overall trade deficit is a controversial issue which cannot be resolved here. The fact that the bilateral deficit with Japan has been so unresponsive to the 1985-88 depreciation of the dollar suggests that a large part of the overall deficit cannot be solved by this method alone—at least, not without a far more drastic fall in the dollar than would be advisable from the point of view of financial stability.

An important but often ignored problem is the cost to the United States of relying on macro policies alone to eliminate the trade deficit.

An important but often ignored problem is the cost to the United States of relying on macro policies alone to eliminate the trade deficit. Fiscal contraction has obvious negative effects on demand, although it is often argued that these could be offset by lower interest rates and a lower dollar (which would "crowd in" investment and net exports). A lower dollar raises the domestic price level and cost of living, thus reducing real wages and living standards. While this effect was mitigated in the late 1980s by foreign (including Japanese) firms' willingness to absorb the dollar depreciation in lower profit margins, this effect would surely be felt if a more drastic depreciation were attempted. Moreover, the experience of many countries demonstrates the risk that reliance on

currency depreciation to solve a trade deficit can lead to an outbreak of inflation, which can then result in a vicious circle as further depreciation is used to offset the inflation, etc. A few economists (e.g., Dornbusch, *et al.*, 1989) have begun to recognize that the costs of macro adjustments will be greater if nothing is done about U.S. competitive decline and foreign trade practices (e.g., restricted entry into the Japanese market) than if these problems are addressed.

The costs of macro adjustments will be greater if nothing is done about U.S. competitive decline and foreign trade practices.

The most elaborate and comprehensive macroeconomic plan for reducing the U.S. overall trade deficit and the bilateral deficit with Japan is the one proposed by Cline (1989a). It calls for the gradual elimination of the U.S. budget deficit, stimulating domestic demand in Japan and Germany, and a moderate trade-weighted depreciation of the U.S. dollar. In his baseline scenario, Cline follows the Congressional Budget Office projection showing that, without additional budget cutting measures, the federal fiscal deficit, which stood at $155 billion in 1988, will only fall slightly to $135 billion by 1992. He further assumes that the average annual growth of real GNP during the 1989-1992 period will be 2.6 percent in the United States and Canada, 2.5 percent in Europe, 4 percent in Japan, 8 percent in Taiwan and Korea, and 4.5 percent in the rest of the world. Cline also assumes a world inflation rate of 4.5 percent. Using the above assumptions with an econometric model, Cline projects that, on the average, the U.S. trade deficit would rise from $105 billion in 1989 to $125 billion in 1992.[10] Cline also projects that the U.S. bilateral trade deficit with Japan would rise from $57 billion in 1987 ($59 billion on the basis of the more common definition of the trade balance used in Table 3 of this paper) to about $61 billion in 1992.

Starting from this baseline scenario, Cline proposes a comprehensive internationally coordinated adjustment program based on the following: (1) complete elimination of the U.S. federal deficit by 1993 by fulfilling the Gramm-Rudman-Hollings targets which call for reductions of the federal deficit by about $40 billion per year from 1990 to 1993. Cline estimates, however, that this, by itself, would only correct about one-third of the U.S. projected trade deficit for 1992. To bring further adjustment and avoid a recession in the United States, Cline further advocates (2) stimulating the growth of domestic demand by 1 percent per year in high-surplus countries, especially Japan and Germany, and (3) a trade-weighted depreciation of the dollar by the end of 1989 of about 11 percent from its end of 1987 level (28 percent with respect to the Japanese yen, 23 percent against the German mark, 5 percent against the currency of intermediate countries such as France and Italy, and no change with respect to the currency of weak countries such as Argentina and African countries).[11] Cline estimates that the combined effect of the expansion of domestic demand in strong countries and the trade-weighted devaluation of the dollar would eliminate another one-third of the U.S. trade deficit by 1992. Cline feels that any stronger macro policy action would not be feasible. His plan would still leave a U.S. trade deficit of about $50 billion by 1992, of which $30 billion

would be with Japan. Without going into as much detail, the Federal Reserve Bank of New York (1989, pp. 38-48) advocates a similar adjustment program, except that it does not advocate a further depreciation of the U.S. dollar.

Despite its apparently comprehensive nature, Cline's proposal has some important limitations. For one thing, it implicitly assumes a degree of international policy coordination between the United States, Japan, and Germany that is entirely unrealistic. Among other things, this proposal would require the European Monetary System (EMS) to alter its parities in order for the German mark to be able to appreciate more than other European currencies against the U.S. dollar. Even if the plan were fully implemented, a large U.S. trade deficit would remain, especially with Japan. More importantly, the plan does not address (indeed, it does not even recognize) the serious U.S. micro-level competitiveness problem with Japan. Clearly, this type of macro policy package must be supplemented by still other policy tools, especially during the next few years.

Clearly, macro policy must be supplemented by still other policy tools, especially during the next few years.

Market-Opening Trade Negotiations

One method of supplementing macro policy adjustments is to forcefully negotiate with other countries (especially Japan) to open their markets more widely to U.S. manufactured exports. It is true that the sharp increase in the U.S. overall trade deficit during the 1980s in general and bilateral trade deficit with Japan in particular have not been due to *increased* trade restrictions against U.S. products in Japan and other nations. But it is also true that *existing* barriers to U.S. exports to Japan have made the bilateral deficit worse than it would be otherwise, and that these barriers put more of the cost of adjustment onto the U.S. if only macro policy remedies are used. Therefore, these market opening measures are absolutely essential for the contribution they would make toward reducing the U.S. trade deficit, as well as for reducing the U.S. competitive disadvantage and establishing a "level playing field" with respect to Japan. It has been estimated that removal of all restrictions against U.S. *manufactured* exports would cut the U.S. bilateral trade deficit with Japan by about $11 billion (Advisory Committee for Trade Policy Negotiations, 1989, p. 77).

Too many times in the past, after strenuous and protracted negotiations, success was announced only to bitterly realize later on that not much actually changed.

Prestowitz (1988), Fallows (1989), Dornbusch (1989c), Dornbusch, *et al.*, (1989), and a growing number of people in the United States doubt that much can be accomplished by multilateral or bilateral market-opening negotiation (the present effort included), especially when it comes to Japan. They point out that too many times in the past, after strenuous and protracted negotiations, success was announced only to bitterly realize later on that not much actually changed. Indeed, according to Wolferen (1989), no interest group in Japan has the power or political will to bring about significant change along these lines, even if it wanted to. Additional protracted negotiations will only provide more time for Japan to target and surpass the United States in yet other high-

tech industries. Japan simply cannot expect to continue to have nearly free access to the coveted U.S. market while preventing similar access for U.S. manufactured products in Japan.

The United States, of course, has itself many trade restrictions against Japanese exports. But these were for the most part imposed in response to Japanese strategic trade practices and only after Japan had gained a significant market share in a major U.S. market. As part of the recent greater aggressiveness of the United States in attacking unfair foreign trade practices, more vigorous anti-dumping and countervailing duty petitions are also being filed and this has led to accusations that the United States is using these tools for essentially protectionist purposes (Salvatore, 1989a). Yet how can we even compare the degree of trade protection in the United States and Japan, when Japan has captured 34 percent of the U.S. automobile market through exports and production by transplants, while the United States has less than three percent of the Japanese market in telecommunications and only about six percent in supercomputers in the face of even greater relative efficiency of U.S. firms in these sectors?

How can we even compare the degree of trade protection in the United States and Japan, when Japan has captured 34 percent of the U.S. automobile market, while the United States has less than three percent of the Japanese market in telecommunications and only about six percent in supercomputers?

To the extent that Japan's low ratio of imports of manufactured goods from the United States and other nations is due to its unique distribution system and Japanese preference for domestic goods, as pointed out earlier, it seems unlikely that Japan will be able to implement effective and timely market-opening measures. While there is some evidence that Japan in recent years made some real attempts along these lines, their effect to date has been very modest. Japan, of course, is not the only offender when it comes to restricting U.S. exports. Korea, Taiwan, Brazil, and India were also included on the list of the most serious offenders compiled by the Office of the U.S. Trade Representative (1990), as were the EEC countries. But the latter have much smaller bilateral trade surpluses with the United States and do not provide anything like the technological challenge to the United States that Japan presents. Thus, it is as much Japan's rapid success in replacing the United States as the technological leader in many high-tech industries in recent years as the severity of its informal but effective trade restrictions that singles out Japan for specific U.S. trade action. Even more important has been Japan's unwillingness to discontinue its strategic industrial targeting policies.

Managed Trade and Protectionism

A growing list of people, including former Secretaries of State Kissinger and Vance (1988, p. 193), and most recently Dornbusch (1989a, 1989b) are so pessimistic about the ability of the United States to solve its overall and bilateral trade problems through multilateral and bilateral market-opening trade negotiations, that they are now advocating result-based or affirmative trade action (i.e., managed trade). Under the type of managed trade that Kissinger and Vance advocate, the

United States would negotiate with Japan, Taiwan, Brazil, Germany, and Korea (the nations with which the United States has the largest bilateral trade deficits—see Table 3) a planned reduction in U.S. trade deficits over the next few years. This would be accomplished either by a reduction in exports to the United States or by an increase in imports from the United States—with the choice left up to surplus nations. For example, any nation with a bilateral trade surplus with the United States of, say $8 billion dollars or more, would be asked to cut its surplus by 10 or 20 percent per year. This is essentially what the 1988 Gephardt Amendment sought to accomplish.

The attractiveness of such a proposal is that it promises to deliver desired results. However, such general targets would fail to adequately deal with the serious U.S. *micro* competitiveness problem with Japan. With such a policy, the United States could conceivably correct its overall trade deficit by exporting more primary products (e.g., lumber and agricultural commodities) while at the same time relying more and more on imports of high-tech products. Furthermore, the composition of U.S. exports would be decided by our competitors.

A better alternative . . . would be for the United States to manage only sectoral trade in some high-tech products . . . with the aim of providing specific negotiated market access share for its exports in the foreign country (Japan).

A better alternative to address the U.S. micro or competitiveness problem would be for the United States to manage only sectoral trade in some high-tech products and with some countries, especially Japan, with the aim of providing specific negotiated market access share for its exports in the foreign country (Japan). Kuttner (1989a) and Tyson (1989) recommend this type of policy, as do the Labor-Industry Coalition for International Trade (1989) and the Advisory Committee for Trade Policy and Negotiations (1989). The latter calls such a policy "trade expanding" rather than "trade managing." Semantics apart, the advantage of this policy is that, while helping to reduce the U.S. overall trade deficit, it can focus on high-tech products and specific countries, and can, therefore, effectively deal with the U.S. bilateral trade and competitiveness problem with Japan (which in the long run may be more serious and intractable than the U.S. overall trade deficit). Such a policy would also provide time for the United States to put in place broader competitiveness measures (discussed in the next section) more consonant with an open market economy. Furthermore, it would convince Japan that the United States does finally acknowledge at the highest level of government that it regards its trade problem with Japan as so serious as to be willing to take drastic action to correct it.

While refusing to call it managed trade and characterizing it instead as market-opening action, the present U.S. Administration has been able to extract promises from Japan to allow greater market access for U.S. supercomputers and satellites into the Japanese market. This is far less than the results-oriented action mandated by U.S. law under Super 301. As so many times in the past, Japan's market-opening promises may remain just promises have little or no effect in redressing the harm and Japan's targeting and strategic trade behavior is causing U.S. firms. The

purpose of Super 301 was to cut the talk and bypass promises, and aim for concrete results. In fact, the Administration seems to be putting forth the minimal amount of effort needed to comply with the letter of the law and pursuing only rules changes rather than demanding specific results. The same is true of the Structural Impediments Initiative, in which endless talks about "reforming" Japanese (or U.S.) structural problems seem unlikely to have any immediate impact on actual trade practices. In particular, nothing concrete is being done by the United States against Japanese industrial targeting. In the meantime, still more precious time is wasted and still more U.S. industries come to be at risk.

Dornbusch (1989a), on the other hand, proposes setting specific targets for the growth of Japanese imports of manufactures from the United States, a proposal which would also address some micro concerns. Dornbusch (1989b, p. 2) states flatly, "Japan must increase imports of manufactured goods from the United States at an average rate of at least 15 percent per year, with adjustments for inflation in each country," under the threat of cutting Japanese access to the U.S. market with an automatic tariff surcharge. Summers (1989) would also support such a strategy.

The idea of imposing a surcharge on Japanese manufactured imports has much to recommend it. If Japanese barriers to manufactured imports cannot be removed, then the optimal policy response is a tariff, according to the economic "theory of the second best." Such a surcharge would be easy to administer through the existing Customs procedures. And as a tax, an import surcharge has the added advantage of generating revenues which could be used to reduce the U.S. budget deficit which, as we have seen, has contributed to the overall trade deficit. Imposing an across-the-board surcharge on all manufactures protects both "mature" and "high-tech" industries, without the U.S. government having to decide which are most strategic. Nevertheless, by favoring manufacturing, such a surcharge would help the sector which contributes the most to overall productivity growth. And the surcharge should be intended as a bargaining tool to pry open the Japanese markets to U.S. manufactured exports, including high-tech. Clear targets could be set for Japanese importing which would result in suspension of the surcharge.

The idea of imposing a surcharge on Japanese manufactured imports has much to recommend it.

However, there are some problems with a surcharge on all manufactured imports from Japan only. First, imposing the surcharge just on Japanese products would violate the nondiscrimination provisions of the General Agreement on Trade and Tariffs (GATT). Second, Japanese firms could evade the surcharge by shifting production to third countries, such as Malaysia or Mexico. And finally, many U.S. producers (even in high-tech industries) are now dependent on imported Japanese parts and components (e.g., semiconductors). These firms' competitiveness could be adversely affected by higher prices for imported inputs, if the surcharge is effective.

These objections need not be fatal to the surcharge idea. There are ways to modify the surcharge in order to solve each of these problems. If one is primarily concerned about preserving the GATT or preventing evasion, the surcharge could be extended to all manufactured imports into the United States. While this may seem extreme, it would not necessarily be inappropriate, given the magnitude of the U.S. overall trade deficit. And such a broad-based surcharge could raise substantial revenue for the federal government.[12] A multilateral surcharge would also be less likely to irritate Japan, and would minimize the possibility of effective retaliation by Japan or any other individual country. A multilateral import surcharge should not be permanent, but should be phased out as the U.S. overall trade deficit and bilateral deficit with Japan are reduced, as progress is made in opening Japanese and other closed markets to U.S. manufactured exports.

If one is primarily concerned about raising the cost of imported inputs, then the surcharge (whether bilateral or multilateral) could be limited to finished consumer goods (such as automobiles and office equipment) for which good domestic substitutes are available. This would avoid any injury to U.S. firms which depend on imported industrial parts and components. However, it is important to note that Japan did not let its industrial development strategy be dictated by the imperatives of finding the cheapest sources of inputs. Rather, Japan often solved this problem by protecting (or subsidizing) the finished goods producers rather than by opening its market to cheap imported inputs—which would have prevented the development of domestic parts and components fabrication. The difficulty for the United States is how much it wants to attempt to recapture already lost parts and components production, or how much it is willing to accept its dependency on imports of these items and focus instead on promoting remaining U.S. industries.

While any particular way of imposing an import surcharge will always be subject to some criticism, the important point is that some kind of surcharge can be a useful and powerful tool under present circumstances. In particular, given the difficulties of current efforts at negotiated market opening, the mere threat of a surcharge (as long as it is credible) could greatly enhance U.S. bargaining leverage and induce a significant increase in Japan's (and possibly other countries') willingness to take effective market-opening measures. Moreover, the fact that such a surcharge will involve some costs for American consumers must be judged in context of the fact that *any* means of adjusting to the trade deficit (e.g., domestic tax increases, government spending cuts, or more dollar depreciation) will also be costly and painful, and in light of the long-term implications of doing nothing to reverse U.S. competitive decline. In this regard, however, there are also other, more direct things the United States can do to help itself.

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Competitiveness Policies

As we have seen, the United States cannot blame all of its competitiveness problems on Japan. Indeed, part of the problem is that the United States has been falling behind Japan in such areas as education, the commercialization of new technology, and industrial cooperation. This section identifies some specific steps that the United States could take to reverse this trend of competitive deterioration vis-a-vis Japan.[13]

Where the United States does fall far short of the Japanese is in the commercial application of basic research discoveries.

Some competitiveness policies (such as encouraging basic research and improving education and job training) are generally accepted and noncontroversial, while others (such as providing trade protection or anti-trust exemptions to an industry in trouble) are surrounded by great controversy. We will examine both types of policies, but focus mainly on trade remedies. One widely agreed upon broad measure to improve U.S. competitiveness is to upgrade the primary and secondary school systems, increase technical literacy, provide better training programs for unskilled workers, and retrain and assist workers displaced by foreign competition. It is now generally recognized that while U.S. higher education compares favorably with that of the other leading nations, the United States falls short in primary and secondary education (Marshall, 1989; Rasell and Mishel, 1990). This, together with inadequate efforts at continuing education and retraining of displaced workers, puts the United States at a growing comparative disadvantage with respect to other leading nations. And public investment in infrastructure can help to increase private sector productivity growth (Aschauer, 1989).

Even though the United States is still unmatched in basic research, Japan is catching up fast both in the amount and quality of its basic research effort. Western Europe is also closing in on the United States in some fields such as space and aviation. Where the United States does fall far short of the Japanese is in the commercial application of basic research discoveries. While the United States invented most of the new technologies from the transistor, semiconductors, and copiers, to robots, fiber optics, and many others, it was Japan that reaped the greatest benefits from their commercialization. With the time compression between discovery and successful commercialization, one can only anticipate even greater competitive difficulties in the future unless the United States takes strong remedial action. As a way to overcome this problem, the MIT study (Dertouzos, *et al.*, 1989, p. 154) recommends:

> The Federal Government should launch new R&D programs directed toward improving manufacturing, product development, and process engineering. These programs ought to be undertaken by several agencies, including the National Science Foundation, the Department of Defense, and the Department of Energy. The Federal Government should also encourage innovation by increasing the speed of granting (or denying) patent applications and

deciding patent-infringement cases; supporting intellectual-property rights, including rights relating to software, through international agreements; and encourage collaborative relationships among universities, industry, and national laboratories that will lead to faster commercialization of new technology.

While national competitiveness depends primarily on what happens in the private sector of the economy, there is much that the government can do to stimulate, facilitate, encourage, and coordinate the national technological effort. As recommended by the President's Commission on Industrial Competitiveness, a cabinet-level department of science and technology should be created to provide guidance and focus to the nation's science and technology policies, and promote cooperation among government, industry, and academia.

The U.S. government should also break out of the defensive box in which it put itself in the past by promoting not only research and development, cooperative arrangements and industry associations, but also by providing the same type of strategic assistance that foreign governments have been providing their own industries. One way of doing this is to revitalize and refinance the U.S. Export-Import Bank. This extends subsidized export credits to foreign buyers of U.S. products. A large increase in these export credits is badly needed not only to neutralize the much larger efforts that other countries make along these lines (which put U.S. firms at a great competitive disadvantage), but also to help U.S. business regain lost markets as a result of the large dollar overvaluation during the first half of the 1980s.

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A more assertive policy would be for the government to sponsor and partially finance industry cooperative research and development consortiums in some crucial high-tech fields in order to counter foreign targeting and meet foreign competition. These are common in Japan and Europe and are credited with giving foreign companies an edge over U.S. competitors. In fact, in 1984 legislation was enacted in the United States that exempted companies from antitrust regulations when jointly performing research and development. Since then more than 100 consortiums have been formed. While some of these are little more than trade organizations, others such that in semiconductors (Sematech) could be very important in helping U.S. firms retain or regain technological leadership in relation to Japan (see Sanderson, 1989, and Cohen and Donow, 1989). When these consortia were first proposed, they were attacked as unnecessary, wasteful, and doomed to failure, but opposition seems to have subsided somewhat since then, at least in the private sector. Maybe there is now greater realization that without such efforts, the United States may completely and irrevocably be pushed out from many high-tech fields. Under consideration now is the extension of the 1984 law to also allow joint production and commercialization of high-tech products by consortia when deemed essential to meet foreign competition.

Another policy option would be guaranteed loans and temporary trade protection for ailing industries in order to help them restructure in response to foreign industrial targeting or unfair trade practices. The cases that come immediately to mind here are the automobile and steel industries, but machine tools and electronics components could also be included. Many economists oppose this option on principle, because it would require public policy to replace the market.[14] But would the United States be better off without a steel or automobile industry? And yet that was precisely the prospect without the trade measures that were used to promote the restructuring of these industries, even if VERs were not the best type of measure that could have been used (see Salvatore, 1987a, 1988). Should the U.S. continue protecting its steel industry now that it has become competitive and profitable again? Kuttner (1989b, p. 24) would say yes until other countries stop subsidizing their steel industries. This makes sense.

Doing nothing in response to other nations' aggressive industrial policies is clearly not the answer.

We used to say in economics that two wrong policies do not make a right one. But doing nothing in response to other nations' aggressive industrial policies is clearly not the answer. According to the newer strategic trade theories, a nation *can* adopt policies that allow it to get a competitive advantage over other nations (see Krugman, ed., 1986; Krugman and Helpman, 1989). Few today can deny that on a benefit-cost basis the government plan to rescue Chrysler was a success (Reich, 1988, pp. 318-325). Government loans were fully repaid and a total of more than 100,000 jobs were saved. The fact that these rescue operations can sometimes be ineffective and wasteful does not mean that they should never be undertaken. In any event, there seems to be some inconsistency in the position of many experts who would always oppose such measures. For example, Bergsten (1988, pp. 131-137) strongly supports the expansion of export credits to counter other nations' practices but would object to provide temporary help to encourage restructuring of a steel or automobile industry. Another inconsistency is the acknowledgment that the trade measures provided to the automobile and steel industries were successful in promoting the restructuring of those industries but continuing to object to the provision in the first place and always. When perfect competition and free trade cannot be achieved because of market failures, appropriate policies are better than no policy, and that it is self-defeating to say that since it is very difficult to devise appropriate policies, we should have no policies at all.

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The question for the United States is under what circumstances should it step in and provide seed money, change tax and antitrust regulations, and grant temporary trade protection in order to promote the establishment or the survival of a particularly crucial industry. For example, without development and production subsidies, Airbus Industry would probably not have been established in Europe, and without large continued subsidies, the operation would probably not survive

today. While this is certainly very costly, Airbus is now a major player in the commercial aircraft industry (having surpassed McDonnell Douglas and being second only to Boeing in sales in 1988) in a field in which the United States seemed to have an unassailable lead only a few years ago. While Airbus Industry might be regarded as a commercial failure in the time perspective of the 1980s alone, it will probably be regarded as an economic success of the 1980s and 1990s *together*. As an example, consider that "the cost of developing a new jet engine is more than $1 billion, and some 2,000 sales over 10 years may be required to break even" (Dertouzos, *et al.*, 1989, p. 202). Given enough time for its sales to grow, Airbus could eventually become profitable.

Strategic policies may be essential in cases such as these where the risks are so high and the time framework so long that private firms would not enter the field without the government sharing some of the risks and costs of development. The U.S. Department of Defense's DARPA (Defense Advanced Research Projects Agency) played a crucial role in the development and growth of computer technology, integrated circuits, lasers, optical communications, not to speak of aerospace. The Boeing 707 jet began as a military transport plane. How do you determine which strategic sectors to promote? DARPA had no difficulty in coming up with a list of 22 technologies critical to national defense but with broad civilian applications (Tolchin, 1989), and DARPA's many past successes add credibility to its choices. DARPA is now sponsoring and partially financing high-tech consortiums in semiconductors, HDTV, super-conductivity and others. What is needed is the civilian equivalent of DARPA.

Strategic policies may be essential in cases such as these where the risks are so high and the time framework so long that private firms would not enter the field without the government sharing some of the risks and costs of development.

Yet the U.S. government has in fact been cutting back even on the little help that it provided in the past and went as far as removing the director of DARPA.[15] And this is occurring at the same time that Japan is putting new emphasis on targeting supercomputers, commercial aircraft, and space, and with the knowledge that DARPA sponsored the pioneering work on many of the advanced technologies on which the subsequent U.S. technological leadership was based.[16]

A wrong policy response on the part of the United States could turn out to be worse than no response at all. But a strategic response that would allow the United States to recapture most or all of the loss (and possibly even initiate some strategic and preventive moves of its own in the future) is now theoretically acknowledged (Brander and Spencer, 1981; Eaton and Grossman, 1986; Krugman, 1987a). While it is very difficult to devise and enact such policies, and the potential for losses and abuses exists, the United States has had some positive experiences. Chrysler is certainly one example. Despite the cost imposed on consumers in the short-run, the help provided to the steel and automobile industries is regarded as having been successful in helping those industries restructure and survive—which could lower costs for consumers in the long run.

A strategic response that would allow the United States to recapture most or all of the loss . . . is now theoretically acknowledged.

One cannot reject strategic competitiveness policies outright simply because the risks of large potential losses are very great. Having let the genie out of the bottle, it now seems both theoretically and realistically impossible to put it back in. That is, having acknowledged that strategic trade can improve on the free trade solution in a world of imperfect competition and all sorts of market failures, defenders of free trade (I am one) can no longer ignore this fact. Often it is not even a question of choice. The United States may be forced by other nations to respond strategically. Unfortunately, the United States today seems willing to be satisfied with the same type of market-opening *promises* by Japan, which produced little or no concrete results so many times in the past.

The United States may be forced by other nations to respond strategically.

Summary and Conclusions

The huge and persistent trade deficits that the United States faces represent one of its most serious economic and political challenges of the post-war period. This is not simply a macroeconomic problem, but strikes at the very heart of the international competitive position of the United States, and puts its future growth and rising standard of living at risk. While a great deal of the trade problem can be attributed to domestic factors, an important part is attributed to the strategic trade and industrial policies of other nations, especially Japan. More than 40 percent of the overall trade deficit of the United States is with Japan, and Japan is the source of the most serious competitive challenge faced by this nation.

Sheltered by a unique distribution system and general preference for domestic goods, Japan has utilized strategic industrial and trade policies to displace the United States as the technological leader in one industry after another. The U.S.-Japanese bilateral trade imbalance has remained unacceptably large, in spite of a significant depreciation of the dollar against the yen since 1985 (a depreciation which has only been partly reversed in early 1990). Negotiated efforts to open Japan's market more widely to U.S. manufactured exports have had little success to date. The degree of international policy coordination necessary to correct the U.S. trade deficit by macro policy corrections alone does not seem realistic.

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Frustrated by the lack of sufficient progress in solving its unsustainable trade imbalance and facing a deteriorating competitiveness situation with respect to Japan, the United States responded in 1989 by labeling Japan a most unfair trader and threatening retaliatory trade action under Section 301 of the 1988 Omnibus Trade and Competitiveness Act. This U.S. action under Super 301 was defended as a step to increase trade and was taken after all other attempts at negotiating greater access into Japan's market had more or less failed. The present Administration, however, seems more intent on complying with the letter of the law than on obtaining concrete results, and so a significant improvement in the U.S. bilateral trade deficit with Japan cannot be expected anytime soon. By mid-1990, the Bush Administration seemed ready to drop Japan from the Super 301 list of unfair traders in return for only vague promises of market opening—the same kinds of promises that have been made and broken before.

The alternative of overall managed trade (the Kissinger-Vance approach) promises results at the macro level but would fail to address the serious U.S. competitiveness problem with Japan. Sectorally managed trade along the direction of Super 301 action could potentially deliver micro results while at the same time helping to correct the overall U.S. trade imbalance. It would also provide time for other more fundamental competitiveness and budget cutting measures to be put in place and

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take effect. An alternative and/or companion policy to managing trade with Japan would be for the United States to impose a temporary import surcharge on manufactured goods which would be phased out as Japan opens its markets to U.S. manufactured products and the huge U.S. bilateral trade deficit with Japan is drastically cut.

Japan's industrial and trade policies seem to have significantly benefitted Japanese producers at the expense of the U.S. producers and, as a result, broad strategic action and reaction on the part of the United States now seems justified both on theoretical and empirical grounds. Without appropriate action, the competitiveness and trade position of the United States will be determined largely by other nations' strategic actions, especially Japan's, rather than by market forces.

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Among other pro-competitiveness policies that the United States can adopt are: (1) upgrading the primary and secondary school systems, raising technical literacy, providing better training for unskilled workers, and increasing retraining and assistance for displaced workers; (2) encouraging the commercial applications of research and establishing a cabinet-level department of science and technology to stimulate and coordinate the nation's science effort; and (3) refinancing an expanded Export-Import Bank. And although drastic dollar depreciation would be ill-advised, a gradual depreciation of the U.S. dollar vis-a-vis the Japanese yen to reflect the inflation and productivity growth differentials between the two nations may be necessary to help keep U.S. goods competitive. Certainly, a major appreciation of the dollar against the yen ought to be avoided.

While national competitiveness depends primarily on what happens in the private sector of the economy, there is much more that the government can do to stimulate competitiveness in general and high-technology in particular. Some of these policies are: (1) sponsoring and partially funding industry cooperative research and development consortia in crucial high-tech fields and extending them to production and marketing, when deemed necessary to meet foreign competition; and (2) granting loans and temporary trade protection to ailing industries in order to help them restructure to counter unfair foreign trade practices and industrial targeting.

By refusing to recognize that Japanese economic behavior has been different, U.S. policy makers are jeopardizing America's own economic future.

To a large extent, Japan's stunning industrial and technological success during the post-war period is due to the industriousness of its people and sense of national purpose. No one should deny Japan the fruits of this incredible effort and success. But by refusing to play by the general rules of the open international economic system, Japan is putting unbearable stress on the fabric of the very system that permitted its economic success, and is straining its political and economic relationship with the United States. And by refusing to recognize that Japanese economic behavior has been different, U.S. policy makers are jeopardizing America's own economic future.

Endnotes

[1] Detailed Japanese trade data for 1989 will not be available before March 1991.

[2] In 1955, alarmed at the prospect of competition from Fiat, Japan asked Italy to limit the automobile trade to 2,200 vehicles in each direction. In the 1980s, with Japan's automobile industry stronger than Italy's the Italian government insisted on adhering to the voluntary agreement (Salvatore, 1985, p. 6).

[3] For an update of Saxonhouse's analysis using a broader theoretical model see Saxonhouse (1988).

[4] Assuming a foreign trade multiplier of about 2, and a marginal propensity to import of about .2 (based on an income elasticity of 2 and an import share of .1), there could be a leakage of roughly ($15 billion * 2 x .2 =) $6 billion to imports (from all countries). Since about one-fifth of U.S. imports come from Japan, the improvement in the bilateral deficit would be diminished by $1.2 billion. This would still allow that deficit to be reduced by $13.8 billion. Other possible repercussions could include an appreciation of the dollar, but as we have seen the value of the dollar has only played a small role in determining the bilateral deficit.

[5] An extensive discussion is found in Dertouzos, *et al.*, (1989) and Jeffries (1987).

[6] While some would not include this among the high-tech industries, its strategic importance arises because it is the major market for, and it is therefore required for, healthy semi-conductor industries—which are certainly crucial high-tech industries (Dertouzos, *et al.*, 1989, pp. 13-14).

[7] A similar analysis of Japan's strategy is found in Tyson and Zysman (1989).

[8] The Advisory Committee for Trade Policy Negotiations reaches the same conclusion (1989, pp. 70-73).

[9] For discussions of macro policies for reducing the U.S. trade deficit see Feldstein (1988a, 1988b), Bergsten (1988), Sachs (1988), and Dornbusch (1987).

[10] Since we now know (from Table 1) that the U.S. trade deficit in 1989 was $129 billion, Cline's estimates represent underestimates.

[11] With an 11 percent across the board dollar depreciation, Cline estimates that the U.S. trade deficit with Japan and Germany would

hardly decline, while the weaker countries would develop unsustainable trade deficits of their own.

12 Cline (1989b, p. 126) has estimated that an across-the-board 15 percent import surcharge would generate about $75 billion in revenues annually and would significantly reduce simultaneously both the internal (budget) and external (trade) deficit. He warns, however, that this is likely to ease pressure to make essential budgetary adjustments and could provoke retaliation by other countries.

13 For analyses of U.S. competitiveness policies see U.S. Congress, Office of Technology Assessment, 1988 and 1990.

14 For discussions of these and related problems see Bhagwati (1988, 1989), Lawrence (1989b), and Lawrence and Litan (1987).

15 See, for example, "White House Won't Back Chip Subsidy," *New York Times*, September 30, 1989, p. D1; "High-Detail TV Faces Funds Cuts," *New York Times*, April 6, 1990, p. D1; and "High-Tech Business Loses a Friend at the Pentagon," *New York Times*, April 29, 1990, p. 5.

16 See "Japan Sets Sights on Winning Lead in New Computers," *New York Times*, April 30, 1990, p. 1; "Will Aerospace Be Next?" *Newsweek*, March 19, 1990, pp. 36-37"; "New Arena for Japanese Business: Space," *New York Times*, May 11, 1990, p. D1; Making Industrial Policy at the Pentagon," *New York Times*, November 11, 1989, p. 4; "Computers and Other Targets: A Lesson from Japan," *New York Times*, May 11, 1990, p. 34.

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